|  |  |  |  |
| --- | --- | --- | --- |
| Lot No: | Lot Details: | Lot size/Quantity: | Date: |

| **Item**  **No.** | **Task/Activity Description** | **Inspection/Test** | | | | | **HP/ WP/ AP/ IP/ TP/ SCP** | **Responsibility** | **Checked by:** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | Site Engineer  Principal’s Rep.  Surveyor  Foreman | **Subcontractor** | **Principal’s Rep.** | **FH** | **Date** |
| **1.0** | **Preliminary Activities – Permits, Documentation, Approvals, Survey Documentation** | | | | | | | | | | | |
| 1.1 | Check for Correct Documentation | Prior to commencing activity | Ensure that all employees and subcontractors are: - using the correct and complete set of drawings  - all drawings are the latest revision | Drawings / Aconex Register | Verify | Drawings and drawing registers | **HP\*** | Site Engineer |  |  |  |  |
| 1.2 | Implementation of all measures and controls | Prior to commencing activity | All necessary measures and controls being implemented, that is PSP, EMP, TMP, SWMS & WP | PSP, EMP, TMP, JSEA, SWMS, WP | Visual Inspection | This ITP signed | **HP\*** | Site Engineer |  |  |  |  |
| 1.3 | Definition of the work Area & Survey check | Prior to commencing activity | Work area has been cleared and surveyed (marked on site). Limits of excavation clearly defined as per For Construction drawings prior to trenching and install. | IFC Drawings  12554937-E014 to E028 | Verify | This ITP Signed & Sub-contractor ITC | SCP | Site Engineer / Site Supervisor |  |  |  |  |
| 1.4 | AGL Drainage Survey | Each Lot | Survey for new pit and duct to be carried out & services in the area located to confirm works at each of the 6 drainage locations. This is to include:  Surface levels over locations of all proposed drainage structures (pit, pipe and headwalls)  Full survey detail of all existing drainage infrastructure in the vicinity of the connection points (SLs, ILs, size of pipes, size of pits, size and depth of trench grates, infrastructure location, material, confirmation of condition suitability for connection).  Invert levels required at all connections to existing infrastructure (pit, pipes and swales/surface)  Location, level, depth, size and type of all existing services within works area. | Aconex Reference: BecaCPL-TENADD-000007 | Verify | This ITP Signed & Sub-contractor ITC | SCP | Site Engineer / Site Supervisor |  |  |  |  |
| 1.5 | Check Conduit Compliance | Prior to commencing activity | Ensure that uPVC conduits comply with AS 1477 or equivalent AS 2053. Shall be heavy duty, orange for electrical services and white for communication services.  Ensure that pipe diameter is correct as per the drawings | Appendix K- Technical Specifications  Cl 4.5.4  Appendix J- IFC Drawings  12554937-E041  &  As 1477,  As 2053 | Verify | Manufacturer’s certificate of compliance  This ITP signed | IP | Site Engineer |  |  |  |  |
| 1.6 | Check Bedding Material Compliance | Prior to commencing activity | Ensure that conduit bedding material is the Approved Hornfells Dust or an approved equivalent. | FHPL-Contadv-000293 | Verify | This ITP signed  Product Data Sheet  Aconex Approval | TP | Site Engineer |  |  |  |  |
| 1.7 | Service Locating/Proving | Prior to commencing Excavation Works | Location of services to be found and marked on the ground within the works;  Obtain excavation permit from APAM prior to any demolition works.  Services located within the works area to be exposed/proven, recorded as survey data and also on a service plan which is to be attached to the Excavation Permit. | APAM- DBYD Job:32711991 Seq:215891341  FH Permit  Appendix K- Technical Specifications  Cl.3.9.3 | Verify | Melbourne Airport Excavation Permit | **HP\*** | Site Engineer / Surveyor |  |  |  |  |
| 1.8 | Backfill Compliance | Prior to commencing activity | If the excavated soil is not compactible material free of rocks or will not pass through a 25 mm sieve then:   * The bottom of the trench must comprise a bed of 50 mm of Hornfells Dust placed before the first enclosure or cable is laid; and * A layer of Hornfells Dust must be placed to cover the conduit with 75 mm of sand before backfilling.   Ensure to use Fill Material that is totally free of organic content, deleterious and/or perishable matter such as bricks, concrete, glass, plastic, timber, steel, or steel by-products.  Backfill of trench to be as per project documentation. | Appendix K- Technical Specifications)  2011.C.I  Appendix K- Technical Specifications)  Cl.3.9.9 | Verify | This ITP signed | TP/AP | Site Engineer |  |  |  |  |
| 1.9 | Under bore | Prior to commencing activity | Prepare and implement a Quality Plan that includes the following documentation at a minimum:   * Full details of the methodology to be used; and * Details of equipment to be used.   This must be submitted at least 7 days prior to the commencement of site work | Appendix K- Technical Specifications  Cl.3.10.3 | Verify | Melbourne Airport Excavation Permit | **HP** | Site Engineer / **Principal’s Representative** Surveyor |  |  |  |  |
| 1.10 | Native Grass Protection | Prior to commencing activity | Native grass protection installed. As per native grass model, 8m wide corridor delineated by bollards/ fencing. | Relevant Native Grass Permit | Visual Inspection | This ITP signed | IP | Site Engineer/Site Supervisor |  |  |  |  |
| **2.0** | **Construction** | | | | | | | | | | | |
| 2.1 | Existing drains | Each | Where cables cross open drains, lower the cables to pass under the drains to maintain the minimum specified depth of cover. Run the cables in conduits encased in a concrete mix across the drain as detailed on the drawings. | Appendix K- Technical Specifications  Cl.3.9.4 | Verify | This ITP Signed | IP | Site Engineer |  |  |  |  |
| 2.2 | Existing services crossing new conduits | Each lot | Only approved methods of excavation that has been approved by the Principal’s Representative shall be used. The owner of the service as per the DBYD plans must be contacted prior to disturbance of area containing service.  Minimum vertical distances between perpendicularly crossed services must be 100 mm.  Details of existing services that conflict with conduit installation discovered during excavation shall be provided to Contract Administrator for approval.  Location, level and configuration of existing service crossing to be recorded in as built documentation prior to backfill (including CAD model file) | APAM- DBYD Job:32711991 Seq:215891341  Appendix K- Technical Specifications)  Cl.3.9.3 | Verify | As-built Survey Report  and  This ITP Signed | **HP** | Site Engineer / **Principal’s Representative** |  |  |  |  |
| 2.3 | Existing duct banks | Each Lot | All duct banks must be extended to new terminating pits provided either side of the duct bank, providing access to the conduits. The new pits must be installed flush with the surrounding ground level.  **Cleaning of duct banks**  Expose and clear all ducts at each location prior to use. Provide clear written details of the proposed cleaning method and equipment to be utilised to the Contract Administrator for approval prior to commencing the works. | Appendix K- Technical Specifications)  3.10.1 | Visual Inspection | This ITP signed | WP | Site Engineer / Foreman |  |  |  |  |
| 2.4 | Condition of existing duct banks | Each Lot | The Contractor must inspect and record the quantity, condition, capacity and configuration of all ducts at each location following cleaning.  Inspections must be identified in the Contractor’s Quality Plan and implemented as a witness point for the Contract Administrator. | Appendix K- Technical Specifications)  3.10.2  AGL Conduit Install ITC | Visual Inspection | This ITP signed | WP | Site Engineer / Foreman |  |  |  |  |
| 2.6 | Excavate Trenches for Conduits | Each Lot | Trenches for conduits shall be excavated to the width and depth required enabling construction of the conduits to the requirements specified on the drawings.  The depth of Primary trenches to be a minimum of 1050mm from the finished ground level and for the Secondary trenches, 600mm from the finished ground level.  The width is to be a minimum of 200mm as specified on the drawings.  Any over excavation under pavements shall be restored using 5MPa lean mix concrete in conjunction with the embedment.  New trenches containing airfield lighting cables must be as indicated on the drawings and in particular excavated to provide a minimum cover to cables or conduits of:  – 750 mm for primary cables  – 500 mm for secondary cables. | Appendix J- IFC  Drawings  12554937-E041  AGL Conduit Install ITC | Visual Inspection | This ITP Signed | IP | Site Engineer / Foreman |  |  |  |  |
| 2.7 | Excavation Obstruction | Each lot | Any rock found to impose significantly on excavations (i.e. rock that cannot be excavated by means of a Rock Saw, Caterpillar D7 with single tyne ripper or similar suitably equipped machine) must be brought to the attention of the Contract Administrator  Cable pits must be relocated as necessary to avoid significant areas of rock that cannot be excavated. Provide details of proposed pit relocations to the Contract Administrator for approval. | Appendix K- Technical Specifications)  3.9.7  AGL Conduit Install ITC | Visual Inspection | This ITP signed | **HP** | Site Engineer / Foreman/  **Principal’s Representative** |  |  |  |  |
| 2.8 | Under Bore | Each lot | Services installed under road and taxiway pavements and shoulders by under boring must have a minimum cover below the surface as shown in the drawings.  Boring by water jetting **is not** permitted  Notify the Contract Administrator at the following stages of construction:   * At setting up for the commencement of drilling; and * At completion of drilling prior to connection of ducting to pits and backfilling. | Appendix K- Technical Specifications)  Cl.3.10.3 | Visual inspection | This ITP signed | **HP** | Site Engineer / Foreman/  **Principal’s Representative** |  |  |  |  |
| 2.9 | Duct Encasement Material | Each lot | **Under Pavements and Drain Crossings:**  Conduits to be encased in 5MPa lean mix concrete as per drawings.  **Under Grass:**  Conduits to be encased in compacted sand bedding. The material shall be Hornfells Dust or an approved equivalent | Appendix K- Technical Specifications)  Cl.3.9.4  Appendix J- IFC Drawings  12554937-E041  AGL Conduit Install ITC | Verify | Delivery Docket and This ITP Signed | IP | Site Engineer/ Foreman |  |  |  |  |
| 2.10 | Conduit Markers & Warning Tape | Each Lot | Pavement edge duct markers shall be installed at the edge of pavements immediately over the centreline of duct banks.  Warning tape shall be of polythene not less than 150mm wide and 0.1mm thick. They shall be orange/white in colour and bear "Caution - Buried Electric Cables Below” or similar repeatedly in black letter not less than 30mm high. | Appendix K- Technical Specifications)  Cl.3.9.5  AGL Conduit Install ITC | Visual Inspection | This ITP Signed | IP | Site Engineer / Foreman |  |  |  |  |
| 2.11 | Conduit Draw Chord | Each Lot | Each duct way in each duct bank shall be fitted with a single unjointed length of draw cord of a length equal to the length of the duct plus 4m. The draw cord shall be polypropylene rope and be 4mm in diameter to facilitate the installation of future cables. Draw cords shall be installed following the installation of the primary cables to prevent entanglement.  Seal the buried entries to ducts and conduits with a pliable non setting waterproof compound.  Seal spare ducts or conduits immediately after installation with a temporary cap, and seal the others after the  Cable. | Appendix K- Technical Specifications)  3.9.1  AGL Conduit Install ITC | Visual Inspection | This ITP signed | IP | Site Engineer / Foreman |  |  |  |  |
| 2.12 | Bedding & Backfilling | Each lot | In trenches, the lower layers to the level of 300 mm above the top of the conduits must be carefully bedded and consolidated at the appropriate moisture content under, around and on top of the conduits to not less than 90% MDD in accordance with test No. 5.1.1 of Australian Standard 1289 in the case of cohesive material, and not less than 70% of the density index in accordance with test No. E6.1 of Australian Standard 1289 in the case of cohesionless material.  If the excavated soil is not compactible material free of rocks or will not pass through a 25 mm sieve then:  - The bottom of the trench must comprise a bed of 50 mm of sand placed before the first enclosure or cable is laid; and  - A layer of sand must be placed to cover the conduit with 75 mm of sand before backfilling  Compaction Testing under roads must be carried out at a rate of not less than:  – Bedding: 1 test per 25 m of backfill laid  – Backfill: 1 test per 25 m of backfill laid per 0.5 m of backfill depth  – Subgrade: 1 test per 25 m of backfill laid – Base: 1 test per 25 m of backfill laid | Appendix K- Technical Specifications)  3.9.9  AGL Conduit Install ITC | Verify | Test Report and  This ITP Signed | TP/IP | Site Engineer / Foreman |  |  |  |  |
| 2.13 | Bedding & Backfilling | Each lot | In wet ground conditions, backfilling above the level of 300 mm above the top of the service may be carried out by  mechanical plant, but care must be taken to ensure that material is not dumped into the trench and that no rock is placed in the trench until the service are covered by at least 600 mm of backfilling. | Appendix K- Technical Specifications  Cl 3.9.9 | Visual Inspection | This ITP signed | IP | Site Engineer / Foreman |  |  |  |  |
| 2.14 | Compaction Tests | Each lot | In all conduit trenches, the lower layers to the level of 300 mm above the top of the conduits must be carefully at the appropriate moisture content under, around and on top of the conduits bedded and consolidated:  For Cohesive material:  To not less than 90% of the maximum dry density for cohesive material,  For Cohisionless material:  To not less than 70% of the density index.  Compaction Testing generally must be carried out at a rate of not less than:   * Bedding: 1 test per 400 m of conduit laid (minimum 3) * Backfill: 1 test per 400 m of conduit laid per 0.5 m of backfill depth (minimum 3)   Where trenches are under constructed pavements and shoulders, or generally in dry conditions, the backfill must be compacted to:  For Cohesive material:  a relative dry density of not less than 95% of maximum dry density , or  For Cohisionless material:  75% Density Index (test No. E6.1 of AS1289 | Appendix K- Technical Specifications  Cl 3.9.9  AGL Conduit Install ITC  Test No. 5.1.1 and test No. E6.1 of Australian Standard 1289 | Visual Inspection | This ITP signed | IP | Site Engineer / Foreman |  |  |  |  |
| 2.16 | Soil Stabilisation | Each Lot | Soil to be stabilised in disturbed areas within jet blast zones, adjacent to the runway with an approved equivalent as directed by the Client such as Vital Bon-Matt Stonewall, Flexterra HP Bitumen emulsion spray | Appendix K- Technical Specifications  Section 7205b  Aconex Reference: BecaCPL-RTRFI-000123 | Verify / Inspection | This ITP signed  Product Data Sheet  Aconex Approval | TP | Site Engineer |  |  |  |  |
| 2.18 | AGL Drainage Install | Each Lot | Install AGL drainage pits and ducts at 6 locations across the aerodrome as per project drawings | Appendix J- IFC Drawings  12554937-E052,  Appendix J- IFC Drawings  12554937-E053 | Verify | This ITP Signed & Sub-contractor ITC | IP | Site Engineer / Site Supervisor |  |  |  |  |
| **3.0** | **Post Installation** | | | | | | | | | | | |
| 3.1 | Survey As-built | Prior to Backfilling Each Lot | Surveyor to pick up completed conduit runs before backfill | Appendix K- Technical Specifications  Cl 3.18 | Verify / Inspection | Survey Report | SCP / IP | Site Engineer / Surveyor |  |  |  |  |

|  |
| --- |
| **Final Inspection** The signature below verifies that this ITP has been completed in accordance with the Fulton Hogan’s Quality system Procedures and verifies lot compliance with specifications.  **Print Name: Position: Signature: Date: / /** |

**Legend:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **HP** | Hold Point | Work shall not proceed past the HP until released by the Principal’s Representative | **IP** | Inspection point | Formal Inspection to be done and recorded |
| **HP\*** | Fulton Hogan Hold Point | Work shall not proceed past the HP\* until released by Fulton Hogan | **TP** | Test Point | Product compliance test to be undertaken and recorded/reported |
| **WP** | Witness Point | An inspection which must be witnessed by the Principal’s Representative | **SCP** | Survey conformance point | A qualified surveyor to check product/section/structure and report |
| **AP** | Approval Point | Written or verbal approval given by the Principal’s Representative |  |  | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Notes** |  |  |  |  |